



January 8, 1991

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U. S. Nuclear Regulatory Commission
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SUBJECT: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Licensee Event Report 50-313/90-019-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(iv) attached is the subject report concerning the inadvertent actuation of the Control Room Emergency Ventilation system due to a spurious trip of a radiation monitor caused by an unsoldered connection which resulted from a manufacturing/production defect.

Very truly yours,

James J. Fisicaro
James J. Fisicaro
Manager, Licensing

JJF/RHS/mmg
Attachment
cc:

Regional Administrator
Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

INPO Records Center Suite 1500
1100 Circle, 75 Parkway
Atlanta, GA 30339-3064

L I C E N S E E E V E N T R E P O R T (L E R)

FACILITY NAME (1) Arkansas Nuclear One, Unit One DOCKET NUMBER (2) 050003131 OF 04
PAGE (3) 368

TITLE (4) Inadvertent Actuation of the Control Room Emergency Ventilation System Due to A Spurious Trip Of a Radiation Monitor Caused By An Unsoldered Connection Which Resulted From a Manufacturing/ Production Defect

EVENT DATE (5)			LER NUMBER (6)		REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)														
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names		Docket Number(s)											
1	2	0	9	9	0	9	0	--	0	1	9	--	0	0	0	1	0	8	9	1	ANO-2	05000368

OPERATING MODE (9) N THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

POWER LEVEL (10)	20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.405(c)	50.36(c)(1)	50.36(c)(2)	50.73(a)(2)(i)	50.73(a)(2)(ii)	50.73(a)(2)(iii)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vii)	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(x)	73.71(b)	73.71(c)	Other (Specify in Abstract below and in Text, NRC Form 366A)	
0													X									

LICENSEE CONTACT FOR THIS LER (12)

Name	Telephone Number
R. H. Scheide, Nuclear Safety and Licensing Specialist	Area Code 501 964-5000

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

Cause	System	Component	Manufacturer	Reportable to NRC	Cause	System	Component	Manufacturer	Reportable to NRC

SUPPLEMENT REPORT EXPECTED (14)

EXPECTED SUBMISSION DATE (15)	Month	Day	Year
<input type="checkbox"/> Yes (If yes, complete Expected Submission Date) <input checked="" type="checkbox"/> No			

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On December 9, 1990, at approximately 2228, an inadvertent actuation of the Control Room Emergency Ventilation System (CREVS) occurred. At the time of the actuation, Operations personnel observed that the indication of the ANO-2 Control Room (CR) ventilation radiation monitor (2RE-8750-1) failed low, then increased to the trip setpoint and actuated the CREVS. 2RE-8750-1 was reset and the ventilation lineup was returned to normal. However, at 2235, the monitor was declared inoperable and the CR was isolated and ventilation was placed in the recirculation mode. The immediate cause of this event was determined to be an unsoldered electrical connection on the radiation monitor operation selector switch. The switch was repaired, the monitor was returned to service and the ventilation system was returned to normal at 0855 on December 12, 1990. A review of the maintenance records was conducted and no documentation was found to indicate that previous maintenance had been performed on the switch. Therefore, it was concluded that the most likely root cause of this event was a manufacturing/production defect. Other ANO-2 Technical Specifications radiation monitors were visually inspected. Since only one additional unsoldered connection was identified, it was concluded that this condition was not a generic problem.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

A. Plant Status

At the time of this event, Arkansas Nuclear One, Unit One (ANO-1) was in the Cold Shutdown condition. Arkansas Nuclear One, Unit Two (ANO-2) was operating at approximately 100 percent of rated power.

B. Event Description

On December 9, 1990, at approximately 2228, an inadvertent actuation of the Control Room Emergency Ventilation System (CREVS) [IV] occurred.

The CREVS for the ANO-1 and ANO-2 combined Control Room consists of two redundant filter trains, both of which are located outside the ANO-1 section of the Control Room. Each filter train includes a centrifugal fan, roughing filter, HEPA filter, and charcoal absorbent. In addition to recirculation and filtration of Control Room air, filtered outside makeup air is also provided to pressurize the Control Room to minimize unfiltered air inleakage into the Control Rooms under isolated conditions. The CREVS trains are normally isolated from the Control Room by isolation dampers. In the event of detection of high radiation or high chlorine concentration, the normal Control Room air ventilation systems of both Unit-1 and Unit-2 are automatically isolated and the CREVS is automatically started.

Two quick acting chlorine detectors (2CLS-8760-2 and 2CLS-8761-1) are provided at the normal ventilation system supply duct for ANO-1 and two detectors (2CLS-8760-2 and 2CLS-8761-1) at the ANO-2 supply air duct. Any one of these detector signals will initiate operation of the CREVS. Additionally, radiation monitors RE-8001 (an area radiation monitor located in the ANO-1 Control Room area) and 2RE-8750-1 (a process radiation monitor located in the ANO-2 normal ventilation system outside air intake duckwork) are provided to automatically actuate CREVS upon detection of high radiation. If either one of these radiation monitors detects radiation levels above predetermined values the CREVS will be automatically actuated.

At the time of the CREVS actuation, ANO-2 Operations personnel observed that the indication for 2RE-8750-1 failed low, then increased to the trip setpoint initiating the CREVS. The radiation monitor trip was reset and Control Room ventilation lineup was returned to normal at 2229. However, at 2235, 2RE-8750-1 was declared inoperable and the Control Room was isolated and ventilation was placed in the recirculation mode in accordance with the applicable Technical Specifications action statement.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

C. Root Cause

Troubleshooting of the radiation monitor revealed that the cause of the CREVS actuation was an unsoldered connection on the operation selector switch. A search of the maintenance records was conducted and no documentation was found to indicate that previous maintenance had been performed on the switch. Therefore, it was concluded that the unsoldered connection was most likely the result of a manufacturing/production defect.

D. Corrective Actions

The unsoldered connection in 2RE-8750-1 was repaired and the monitor was returned to service at approximately 0848 on December 12, 1990. At 0855, the Control Room ventilation system was returned to its normal configuration and the Technical Specifications action statement was exited.

A visual inspection of 6 other ANO-2 Technical Specifications related radiation monitors was performed to determine if unsoldered connections was a generic problem. This inspection identified one additional unsoldered connection, which is being repaired. Considering the large number of connections which were inspected and the identification of only 2 unsoldered connections, it was determined that this condition was not generic. The ANO-1 radiation monitors were not inspected since they were not manufactured by the same vendor as the ANO-2 monitors.

E. Safety Significance

If the unsoldered connection had caused 2RE-8750-1 to fail low during a high radiation event, it would have been incapable of actuating the CREVS. However, the area radiation monitor in the ANO-1 portion of the common Control Room (RE-8001) would have been operable and capable of actuating the system. Considering this, and the fact that the CREVS actuated as designed even though no actual high radiation condition existed, it was concluded that there was no safety significance associated with this event.

F. Basis for Reportability

This condition is considered reportable pursuant to 10CFR50.73(a)(2)(iv) as an automatic actuation of an Engineered Safety Feature.

This event was also reported in accordance with 10CFR50.72 on December 9, 1990.

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G. Additional Information

Previous CREVS actuations initiated by 2RE-8750-1 were reported in LERs 50-313/89-009-00, 50-313/89-011-00, 50-313/89-014-00, 50-313/89-025-00 and 50-313/90-009-00. Various causes for these previous actuations were identified. However, none involved unsoldered electrical connections.

Energy Industry Information System (EIIS) codes are identified in the text as [XX].